

# **REMAKING THE *TERRAIN VAGUE***

Design Research Project APG5058s

Submitted in partial fulfilment of the requirements for the degree  
Master of Architecture (Professional)

By

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## PRETEXT

This paper serves as a pretext to the resulting architectural project and traces the progression of the design process born from the entry point of this thesis, of a site. It portrays an attempt to conceive a considered methodology for approaching architectural design.

Thus this dissertation traces the unexpected route from conception to product. The experimentations and research direct, divert and redirect the trajectory of the design process with the intention of creating an investigation that is hopefully personal, rich and most certainly not predetermined.

The ensuing research and theory are born from personal readings and points of view relating to the site and are seen as a means to develop a critical position allowing for a considered approach to design. Therefore the design does not attempt to manifest the theory and research within this paper but rather they offer a trope through which the design is built up.

Consequently the design project is essentially drawn from the site, as the foundation on which this thesis is developed.



## INTRODUCTION

This thesis aims to search for an imaginative way of engaging the un-programmed space in the city created by industrial infrastructure. The objective is to understand value of these spaces as they exist within the city but refuses the romantic view of leaving the site untouched altogether.

This project is undertaken with the intention of exploring the possibilities of generating a new concept and typology for addressing a specific under utilised space in the city.

I wish to pursue architecture with wider urban influence that speaks to the imagination through uncovering the hidden essence of site. However the intention is to move beyond the pastoral, embracing the existing context and engaging with post-industrial demands of multiplicity and change.

The resulting architecture looks to create an enigmatic experience linked to the development and history of the site whilst leaving the future open to interpretation and appropriation.

The design is envisaged as a functioning, industrial, manufactured landscape as the robust armature with the human occupation dependant on the imagination of the cities inhabitants. This freedom afforded to the users possibly suggests a new way of seeing and using the city. This new perspective offers a potential interaction with the urban, such that the city is generated from the bottom up, refusing the traditional model of top-down urban planning.

To this end there are four prevailing themes developed within this paper. These themes serve as the interests underpinning the development of the accompanying architectural design:

1. The selected site on the Cape Town foreshore under the freeways.
2. The conceptual theory of *terrain vague*.
3. The reclaimed land and associated history of the site.





Aerial photograph of Cape Town city bowl 2008\_Site identified in red\_Image from Mowbray mapping Dept.

4. Challenging the segregation of infrastructure and inhabitation established by the industrial age.

Through the exploration of these interests and the evolution of the paper, specific design related questions emerged that this text attempts to address.

- Embracing the critical theory of the *terrain vague* the question arose as how to treat this condition sensitively thus not eroding the freedom associated with the space? More specifically the question sought to establish where the meeting point should be between the diametrically opposing ordered city and the hidden order of the *terrain vague*?
- A further question arising out of this interest is how to extract the material character out of the site?

- Operating within a diverse society where people engage and form relationships with the city, each with bespoke needs, how design and program can facilitate a diversity of unexpected activities?
- The final question raised was: what is the resulting influence on the *terrain vague* when the agency of design intervenes in an attempt to reiterate its qualities?

Hence the intention of this document is to unpack the experiments, thinking and research carried out under the guidance of the aforementioned interests and questions, and how these endeavours stem from the specific site underpinning program, space, and tectonics of the resulting architectural design project.





Photograph of Site taken by author

## Chapter 1

### UNDER THE BRIDGE



Photograph of Site taken by author



The design and research process situated itself, found meaning, direction and focus with the entry point of a site of personal interest.

Located on the reclaimed land of the foreshore the selected site sits behind the harbour under the freeways. Experiencing the site everyday for years my daily commute was occupied with imaginary scenarios played out devoid of the constraints of urban plans, zoning, or any other logic. My mind created a water theme park on Monday, Tuesday gave rise to a mega-strip club, on Wednesday there was a rapid boat terminal shipping

people in from the West coast, Thursday saw the rise of a hemp plantation solving economic and ecological crisis, and by Friday the site was reverted back to the ocean, with surfers stringing their way between the freeway piers, only to have a blank canvas to address the following Monday.

My initial reading was that the city has seemingly forgotten about the site, created by large industrial infrastructure. The large intertwined forms in an empty landscape instinctively attracted my attention. However it is the lack of attention given to the site that allows for a

freedom of appropriation of the space liberated from the hegemony of top-down urban planning.

It was this freedom afforded to the *imagination* by these spaces, for myself and for the actual users of the site, which began to establish a critical position aligned with that of the *terrain vague*.

An interest paralleled to the informality and freedom associated with the *terrain vague* was born whilst travelling through numerous cities in India. I was enthralled by the creativity with which space and resources were used. It is an environment that appears to be bordering on anarchy, but somehow operates incredibly efficiency on a day-to-day basis.

I encountered a man (Gupta) in the knife sharpening business pedalling a stationary bike with flint attached to the rear rim, a friend of his and business partner (Anisa) stood at the rim sharpening

customers blades whilst they waited and Gupta pedalled. In order to allow for Gupta to pedal and sharpen knives for the whole day in extreme heat, the business partners had wired an "informal" (some may say illegal) connection to the municipal electrical wires allowing for a fan to be powered that was set up facing a pedalling Gupta. This connection was then shared by an entire row of equally creative entrepreneurs establishing something of market place.

This storey serves to exemplify how opportunities and solutions arise when the watchful eye of authority does not determine through constraints how a space is to be used.

However it was never the intention to try and recreate this Indian informality but rather to address the site through a critical position of *terrain vague*.





Photograph of Site taken by author

## Chapter 2

### **TERRAIN VAGUE**

#### **-A contemporary understanding**

The definition and understanding of contemporary positions on the *terrain vague* is a research paper in itself. As a result this section serves primarily as an introduction to concept of the *terrain vague*, setting the context within which subsequent sections are read.



## ETYMOLOGY

The term the *terrain vague* cannot be elaborated on without a comprehensive understanding of these two words that encapsulate the essence of this condition. Hence one first needs to explore the origins of the words, essentially unpacking the baggage that the term comes with.

Terrain, in French refers to an extensive portion of ground, in an urban setting, or imprecisely defined areas of territory in a state of expectancy.<sup>1</sup>

Vague, has a Germanic as well as Latin origins. In German, the term alludes to sea swell, the oscillation, movement, fluctuation and instability of waves in

water. In Latin the word stems from the English words vacant or vacuum, that which is empty or unoccupied, however the term also suggests a freedom or availability.<sup>2</sup>

Vague has further French meanings of indeterminate, imprecise or uncertain.

In brief summary the critical ideas associated with the term *terrain vague* (which is not intended as a definitive definition) is an undefined, unused, indeterminate urban space in a state of expectancy (the imprecise nature of definition seems apt considering the character of the condition).

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<sup>1</sup> De Sola Morales, 1996

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<sup>2</sup> De Sola Morales, 1996

## THE IN-BETWEEN AND OTHER

The ancient Greek polis (city state) was defined by a wall surrounding the city. The structure served as a device that distinguished the "known" from the "other", the inside from the outside. However the current state of cities are such that these "other" spaces are no longer distinguishable through their location outside of the city, we now find these "other" spaces within our cities located in-between organized structures. These vacant indeterminate territories indiscriminately puncture the productive fabric, "mentally exterior in the physical interior"<sup>3</sup>. They essentially become places

within the city where "the city is no longer."<sup>4</sup> These voids in the urban fabric create interstitial landscapes identified as places of "otherness" catering for informal practices, due to lack of attention and interest in these spaces.

Within the post-industrialized cities these spaces are usually found surrounding industrial infrastructure such as factories railways lines and under freeways. They are places where the memory of the past dominates over the present, expectantly waiting for the project of Modernism to be completed.

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<sup>3</sup> De Sola-Morales, 1996

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<sup>4</sup> De Sola-Morales, 1996

## ARGUMENTS IN DEALING WITH THE TERRAIN VAGUE

Identified below are two conflicting approaches to dealing with the *terrain vague*, with the approaches of the identified artists offering a third way out of this binary.

### Condemnation of the disorder

At the one end of the spectrum the *terrain vague* is seen as an unacceptable manifestation of the breakdown in the current socio-economic condition. It is seen as the antithesis to the utopian idea of the city, with futuristic apocalyptic movies often portraying entire cities in a state of *terrain vague* representing the eventual collapse of society.

It is a condition that confronts the uncertainty of a post-modern society, causing discomfort and anxiety, which is traditionally overcome spatially through architectures creation of order.

With this view, the means for intervening into these indeterminate spaces is to alter the aesthetic appearance of the place with planting, turning the space into a car park – as is the situation on the foreshore – or absorbing them into the *productive*, ordered city. The last approach involves an overriding urban plan for the development.

Valued, a priori, as a space of freedom in direct opposition to the aforementioned hegemonic approach, is the romantic view that these spaces with their lack of order and deterministic programs allow for the emancipation from the constraints imposed by top-down urban planning and should be celebrated as such. This point of view acknowledges that society's behavioral patterns are directed by spatial codes governing our cities. In dealing with socio-spatial practice Lefebvre states:

*It is clear, therefore, that a spatial code is not merely a means of reading or interpreting space; rather it is a means of living in that space, of understanding it and producing it.*<sup>5</sup>

In addition Neil Leach, in his book *Camouflage*, outlines our desire to form relationships with our environments, accordingly, the adhering to socio-spatial practices of the city allows us to forge these connections we need.

Consequently these "other" spaces offer the opportunity for a spontaneous appropriation of the space for activities not catered for in the productive city, where these codes and practices can be broken away from. Hence the argument is that these spaces must be maintained as a means for an alternative way of using and living in the city.

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<sup>5</sup> 1991, p47-48

## THE MATERIAL TERRAIN VAGUE

Luc Lévesque poses the idea that the *terrain vague* cannot be divorced from the forces that produced it.<sup>6</sup> Thus in dealing with the situation, neither of the two extreme approaches identified are favored, but rather one needs to search for the underlying forces of the site, in an attempt to harness the conceptual and experiential qualities that are part of the genetic makeup of the site.

By the uncovering of the invisible forces that the passing of time and the loss of limits has established the *terrain vague* is acknowledged as material, a product of history and very much part of the city. Consequently it is this approach to the intervention into the *terrain vague* that is adopted in this thesis exploration.

Despite a seemingly typical post-modern choice of the mid-ground of both and, this standpoint sets out its own specific set of challenges that neither cancels or imitates.

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<sup>6</sup> 2002



Photograph of the reclaimed land. From Cape Town Archives\_Elliott Collection

### Chapter 3

## UNCOVERING THE EXISTING

*If architecture is to be of any use in contemporary society, it must be bigger than the vicissitudes of the Spectacle. If it has any importance left, it must help us remember not in a specific way, although it is often called upon to do so, but in an enigmatic, empathetic way.<sup>7</sup>*

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<sup>7</sup> Spiller, 2006, p166





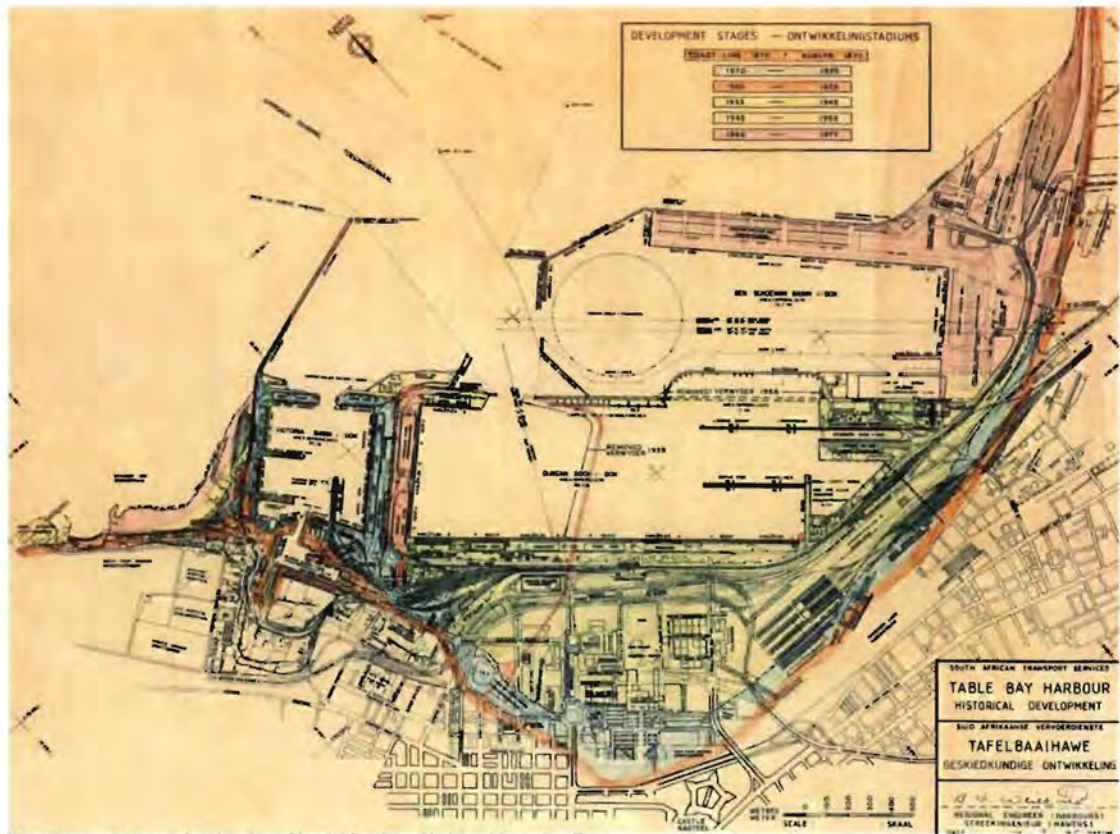
Photographs of foreshore in 1960 and 2012 showing development of reclaimed land\_Both Photographs from Atlantic Sun 15-03-2012

Located on the reclaimed land of the foreshore and within close proximity to the Cape Town harbour the site immediately raised questions as to the geotechnical conditions and inevitable subterranean infrastructure.

Of further interest was the possibility that the narrative to the development

of the city was contained in the uncovering of the subterranean.

It was thus postulated that in order to identify the illusive under lying forces producing this *terrain vague*, digging below the ground surface allowed for the exposing of the existing structures at play.



Map showing stages of reclaiming of land\_Map from Harbour Master's office

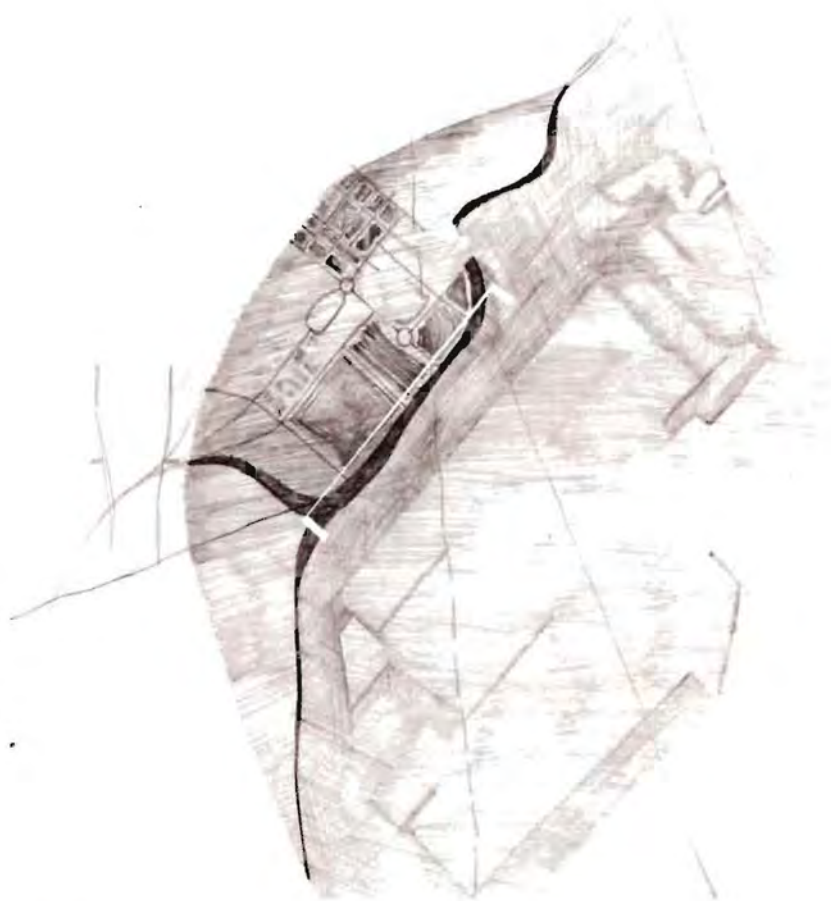
## RECLAIMED LAND

### History of the site

The geotechnical conditions of the site are directly related to the history of the manufactured landscape of the foreshore,

thus a brief explanation into the development of the land underpins the geotechnical understanding of the site.





Section through site of geotechnical conditions\_Data from geotechnical studies conducted during collected during construction of freeways from Cape Town City council

Pre-1905 - The coast line relating to the specific site was predominately unchanged with Alfred basin dock being the only contrived alteration to the foreshore coastline prior to this date (Illustrated on page 18 by brown).

In 1905 the large scale reclamation of land began using the technique of end-tipping that formed the Initial Victoria Basin and the land from which the Adderley street pier sprang, this process spanned from 1905-1920 (represented by blue on page 18). The technique used would play a vital role in the behaviour of the aquifer (described below) in the future.

From 1920 - 1933 The harbour was expanded beyond the Victoria basin to house the Royal Navel facility and the Royal Navel Yacht club<sup>8</sup>. The design of the break water used concrete blocks dumped onto the sea bed and then placed rubble and sand on top to create the remainder of the breakwater. This construction was absorbed into the land with later reclamations and became a

substantial factor to deal with in the construction of the Cape Town International Convention Centre (CTICC).

In the 1930's dredging of the harbour began, providing material that was pumped inshore for the reclamation of the foreshore as it stands today.

As a result of this dredging most of the underlying material of the site is a marine sediment (like beach sand). Due to the nature of the sandy sediment a solid surface holding the sandy material was added. The final surface as it stands today was largely created by the dumping of between 200mm and 1100mm of mixed fill brought in from what is now the Bergvliet wetland (this process is responsible for the creation of the wetland). The duration of this process spanned from 1933-1945 and is represented in green on Image 6.

Although further expansion took place from 1945-1977 these reclamations of the foreshore bear little influence on the specific site of investigation.

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<sup>8</sup> du Plessis, 2000, p9



Photograph of soil conditions on site\_Source CTICC geotechnical report



Photograph of water table\_Picture from CTICC geotechnical report



### Geotechnical conditions

The entire site is underlain by bedrock from the Tygerburg formation belonging to the Malmsbury group. The formation of the bedrock is as a result of the layering of, greyish to greenish medium to fine-grained greywacke, phyllitic shale, siltstone and quartzite, in the horizontal plane essentially stacked on top of each other in concentric layers.<sup>9</sup> Due to the seismic activity inherent in the earth's crust these layers have been bent and broken and are currently lying almost vertical (averaging between 75-80 degrees).<sup>10</sup> This condition can be seen in Seapoint where the bedrock has been pushed to the

surface in certain places, and is reported to have done so similarly in points along the original coast now forming part of the reclaimed land.<sup>11</sup>

Above the bedrock there are six basic soil profiles that relate to the reclamation process. However the intricacies of these profiles hold no relevance to this report as they concern the engineer and structural specifications. However what is of relevance and interest to this report is that these six profiles and their densities have significant water permeability values, resulting in an uncontained aquifer.

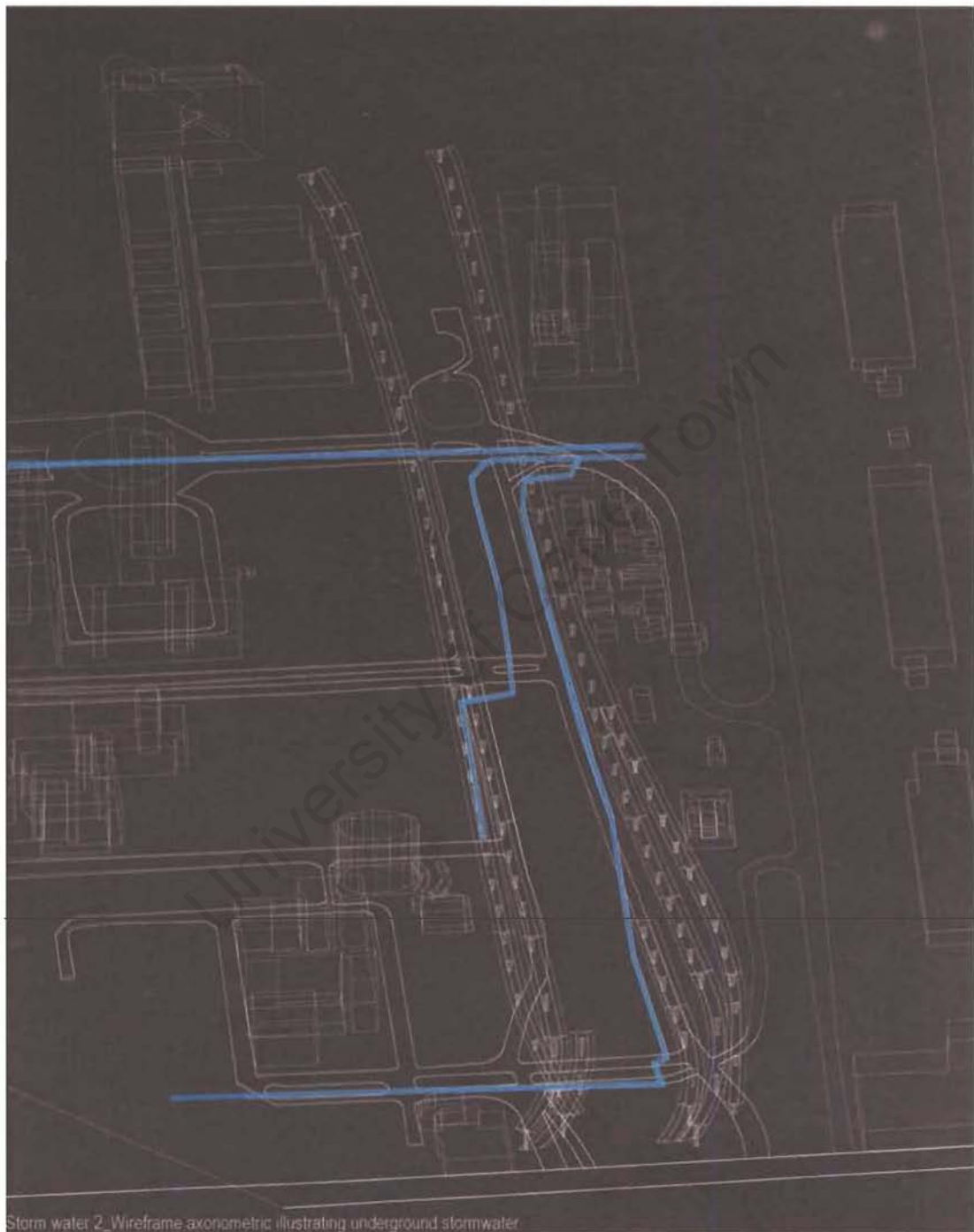
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<sup>9</sup> du Plessis & Wieringen, 2000, p7

<sup>10</sup> du Plessis & Wieringen, 2000, p7

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<sup>11</sup> du Plessis & Wieringen, 2000, p33



Storm water 2. Wireframe axonometric illustrating underground stormwater

## **WATER**

### **The water table**

The groundwater regime is comprised of an unconfined aquifer that is situated between the bedrock and roughly 3m below the natural ground level. Although this aquifer is made up of the six soil profiles mentioned above the hydraulic continuity and aquifer properties of these soils behave similarly.

As suggested above the water table residing in the aquifer is on average around 3m below the natural ground level. However the seasonal fluctuations of rainfall lead to a variation of around 200mm from summer (low rainfall) to winter (high rainfall)

There exists a hydraulic gradient across the site from South-West to North-East, moving from the mountain towards the sea. This gradient causes the movement of water in the same direction and is consistent with sources of groundwater recharge and the topography across the site. This moving water is discharged into the ocean.

The hydraulic connection between the unconfined aquifer and the sea occurs around the harbour wharves however it is widely accepted that this connection does not result in a daily variation of the water table levels according to tides.



Storm water sketch 1\_Drawing of storm water system in Cape Town City bowl\_By author\_Pencil on paper

### Storm Water

Storm water sketch 1 is a sketch isolating the storm water services within the city bowl. Illustrated in the sketch is how the natural crevices in the mountain channel the water into specific routes that are then in turn absorbed into the orthogonal storm water services that relate to the road layout of the city.

With reference to the site on the foreshore, the sketch illustrates how the services are gathered at two specific outlet points, with the primary interest in representing the magnitude of these collection points. Essentially all the water falling within the city bowl and on the Northern face of Table Mountain is expelled into the harbour at two points.

Calculations below show that average amount of water expelled into

the ocean per annum based on average rainfall within the city bowl each year. These figures do not take into consideration water absorbed directly into the ground and used by existing plants or filtered into the water table and thus are relatively inaccurate but intended to be considered as a rough figure illustrating the potential fresh water unutilised and expelled into the ocean.

The estimated average rainfall within the Cape Town City bowl is 515mm per annum.<sup>12</sup> A rough estimate of this catchment area is 2040Ha. This equates to a collection of around 10.5 billion litres of water each year that is unused and expelled into the ocean. (515mm x 20 374 270m<sup>2</sup>)

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<sup>12</sup><http://www.weathersa.co.za>





Storm water sketch 3\_Drawing of underground water infrastructure showing direction of water movement and relative sizes of culverts\_Pencil on paper

Storm water 2 identifies the specific locations of the storm water services as they relate to the site between the freeways. Two main culvert systems enter the site on both the East and West ends with the culvert entering on the Eastern side turning at 90 degrees and running directly across the site meeting up with the other culverts running down Heeringracht. The magnitude of these culverts where they connect is represented in Storm water sketch 3, some measuring 2,1m wide

The resulting conclusions from locating and understanding the activities within these culverts provide exciting design possibilities in revelling and harnessing the invisible subterranean water activity present on site. In utilising the water provided for on site and putting to use, an architectural intervention is conceived that deals with various architectural concerns as well as addressing wider economic and ecological concerns.

#### The water quality of the aquifer

There are 2 sets of data recording the quality of water. The first tests were done in 1985 with the most recent tests being conducted in 2000.<sup>13</sup> These test results are summarised in a graph (below) along with the levels of standard drinking water as a comparative measure. Although these figures are of little interest (possibly no interest at all) relating to an architectural investigation, these figures serve as proof as to the deteriorating quality of water in the aquifer. In the Geotechnical report for the CTICC the vulnerability of contaminating the aquifer is not seen to be a necessary

consideration as it is "not being exploited as a resource, and is unlikely to be in the future."<sup>14</sup>

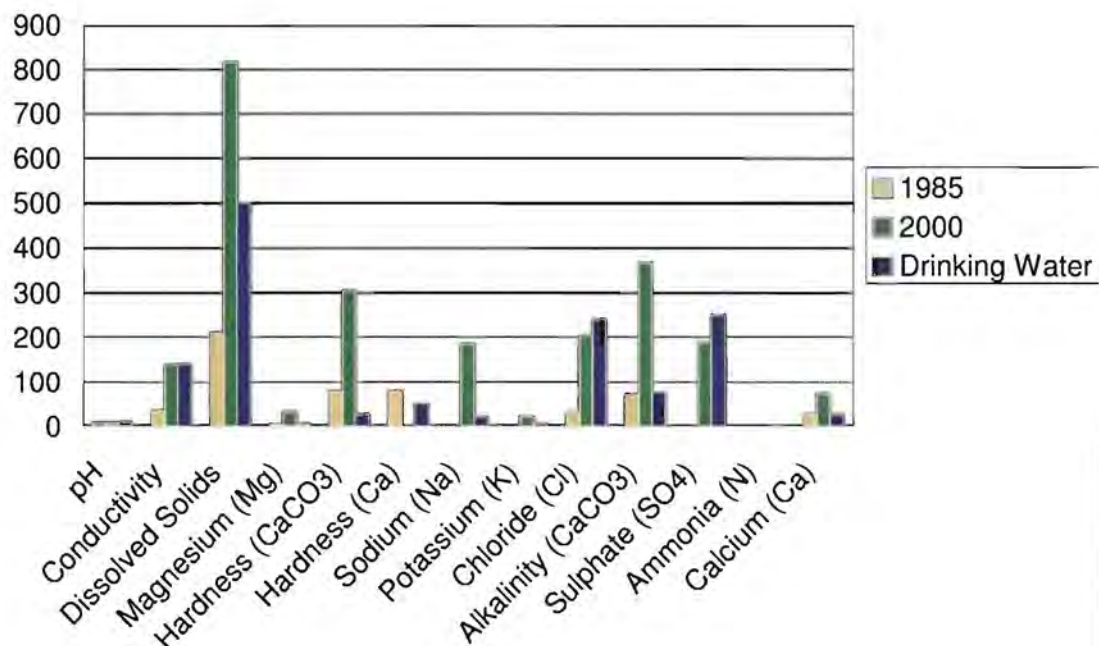
The current sources of contamination have been identified as the pipeline that used to transfer oil and fuel from the dock to the old foreshore power station located at a shallow depth that ran along the long street extension. Further sources of contamination are; the upper recent fill used for the reclamation of land, as it contained ash made from the power station clinker; oil and fuel spills from vehicles and the leaking of old sewage infrastructure into the surrounding earth.

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<sup>13</sup> Data from CTICC geotechnical report

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<sup>14</sup> du Plessis & Wieringen, 2000, p32



Graph illustrating comparative test results\_All figures mg/L\_Data from CTICC Geotechnical report





Photograph of Balcones, no. 2, 1977. Images from Gordon Willems, by D. G. and J. G. 1977.

## Chapter 4

### PRECEDENT STUDIES

The concept of the *terrain vague* is still in its infancy with a *do something but nothing* attitude towards finding a mid-ground, or third approach, between the above mentioned contradicting arguments for dealing with these spaces. Consequently the search for precedent was forced outside the field of architecture.



House\_1990\_Photograph by John Davies



House\_1990\_Photograph by John Davies

The multivalent layered work of both Gordon Matta-Clark and Rachel Whiteread offered a conceptual means for intervening in space with the intention of exposing, and questioning the nature and influence of the structures making that space. However there are inherent differences between art and architecture that require these issues to be abstracted and more specifically the means by which these issues are brought up to be abstracted.

The theory document submitted earlier this year titled *Unveiling invisible forces – a technique for addressing the terrain vague as material* serves as more complete explanation into the artists work. However a similar complete explanation is beyond the scope of this paper and as a result key factors in the artists work are identified and briefly summarised focusing personal experiments and explorations relating to the design initiated by the study of the artists.





\_4\_Photograph inside *Splitting Englewood*\_1974\_Image from Gordon Matta-Clark\_by Diserens (ed)\_p83

## GORDON MATTA-CLARK

*Completion through removal. Abstraction of surfaces. Not building, not-to-rebuild, not-built-space. Reading new openings*

*against old surfaces... Approaching structural collapse, separation of the parts at the point of collapse.<sup>15</sup>*

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<sup>15</sup> Gordon Matta-Clark, 1971, p33



Photos of *Conical Intersect* in progress\_1975\_Image from Gordon Matta-Clark\_by  
Diserens (ed)\_p149

A fascination with the later work of Gordon Matta-Clark called *building cuts* raised three importance issues relating to space, that I sought to explore through my own drawings, experiments and research.

In these works he makes cuts into buildings, often short-circuiting the spatial syntax of the original design, in doing so completely altering the space whilst maintaining a sense of the original.

The issues are the ability of Matta-Clark's work to:

*Redefine a spatial situation*

Through the rewiring of the spatial syntax of buildings, Matta Clark allows for new relationships to be forged between inside and outside and previously separated spaces in the building.

*Reveal the autobiography of the buildings he cuts into*

In uncovering the histories of these buildings the viewer is offered multiple

readings, allowing for a personal engagement with the work, an engagement that the viewer is then able to take beyond the actual work itself and imagine the processes at play throughout buildings in the city, becoming what Charles Jencks calls an "enigmatic signifier."<sup>16</sup>

*Enforce the understanding of space through movement*

The cuts made into the buildings address the understanding that all forms have three moments of width height and depth.

*Provide commentary on the socio-spatial hierarchy within the city*

He addresses the hegemonic presence of private property and acts as a statement of his beliefs in the socio-political ordering of space, and the controlling influence thereof.<sup>17</sup>

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<sup>16</sup>2005, p22

<sup>17</sup> Kirshner, 2003, p148





Untitled\_2000\_Cast of three shelves with books\_Image from <http://www.museomadre.it/opere.cfm?id=254&evento=33>

## RACHEL WHITEREAD

*... materialising those traces and signs of identity which are largely ignored... but are fundamental to irrational or intuitive perception.*<sup>18</sup>

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<sup>18</sup> Bradley, 1996, 17

Through the casting of familiar objects that are designed with human inhabitation in mind Whiteread's sculptures solidify space, they reveal domestic "landmarks of human experience that are overlooked in our functional daily lives."<sup>19</sup> Her work represents things that are designed by people for use by people and as such consistently have a human scale regardless of size. Thus, although her works represent objects through the medium of art, her sculptures force one to take an abstract position adjacent to the space that was designed for human inhabitation and as a result raises challenging concepts relating to space.

Consequently I have identified a further 3 spatial issues that Whiteread raises in her work that addresses the "unveiling" of, and challenges spatial conceptions. These issues are:

*The object oscillates between the past and the present*

By casing the interior as solid the original structure of the house – which the artwork is about- is demolished to reveal

the lasting sculpture. However through ones inherent understanding of space we read the sculpture and immediately an implied residue or reminder is evoked of the original, thus the existing sculpture oscillates between the past and the present in the same instance

*Reveals the overlooked*

By casting the spaces that everyday objects occupy Whiteread interrogates the familiar, things that are taken for granted and overlooked. In doing so she reveals the presence of that object (not the actual object used in the specific casting but these objects that we all encounter), that is then related to ones own encounters with similar objects.

*Recreates the surface of exchange*

The technique of casting creates a detailed negative print of the surface from which the cast was made.

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<sup>19</sup> Bradley, 1996, p8



Closet\_1988\_Photograph from Shedding Life by Bradley\_31



## CASTINGS AND CUTTINGS

### -A response to Whiteread and Matta-Clark

*Casting and cutting experiments* shows specific experiments undertaken in response to the aforementioned artists. CC4 shows a bed of screws representing the underlying structure, canvas was then overlaid and starched, holding the specific shape of the mould but maintaining the memory of the screws creating the new surface with the memory of the forces creating it. The new surface oscillates between the past and the present like the work of Whiteread.

CC3 shows a hole that is then cut into the casting to reveal the actual structure suggesting the entire original mould below.

#### *Suggesting a boundless space*

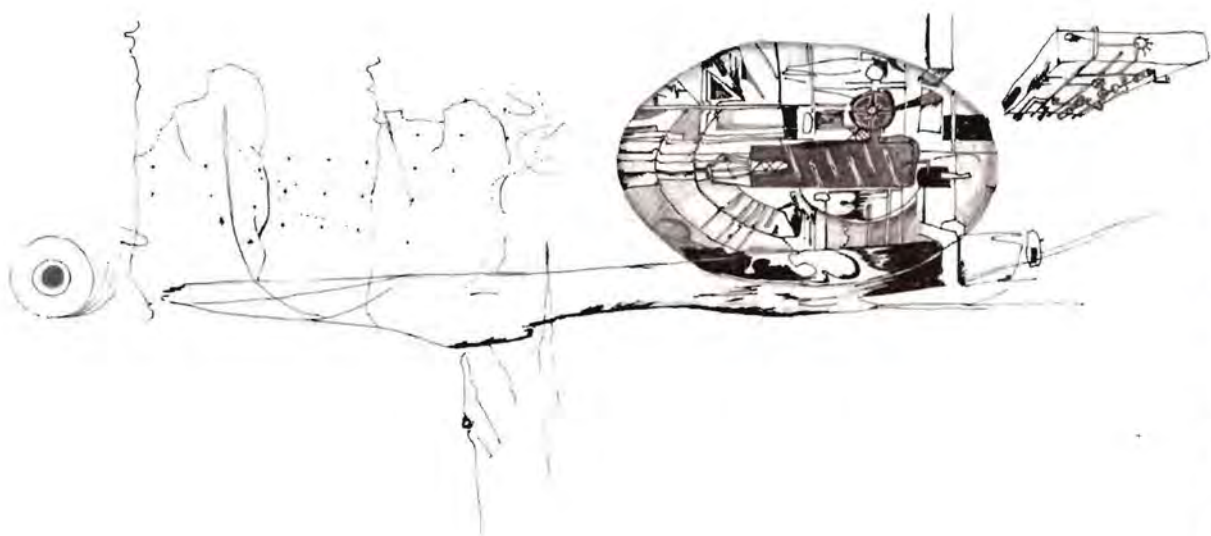
One of the defining characters of the specific site is the lack of defining boundaries. Consequently initial investigations identified the swath of space between the freeways as the boundaries to the intervention. However these boundaries exist only in aerial photographs and maps, removed from the reality of the

site. The actual experience of space moves under and beyond the freeways in all directions. Therefore specific spatial constraints needed to be established that began ground the architectural focus.

A further conceptual sketch *casting and cutting drawing* was done, in response to the castings, of an abstract water purification plant on site offering a suggestion as to how these constraints may be established.

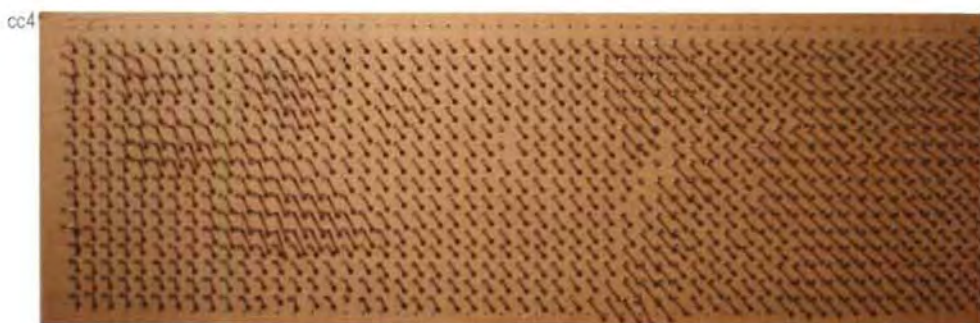
In this drawing an oval hole is cut into the ground revealing the mechanical functioning of the purification plant. Matta-Clark's *building cuts*, cut specific holes into the facades or floors of a building revealing the previously hidden the space beyond. This peephole into the building allows for an understanding of the functioning into the space beyond.

Relating back to the sketch, the oval cut into the ground suggests that the functioning of the plant below continues on underground. As a result a boundless space is suggested with only a specific portion exposed.



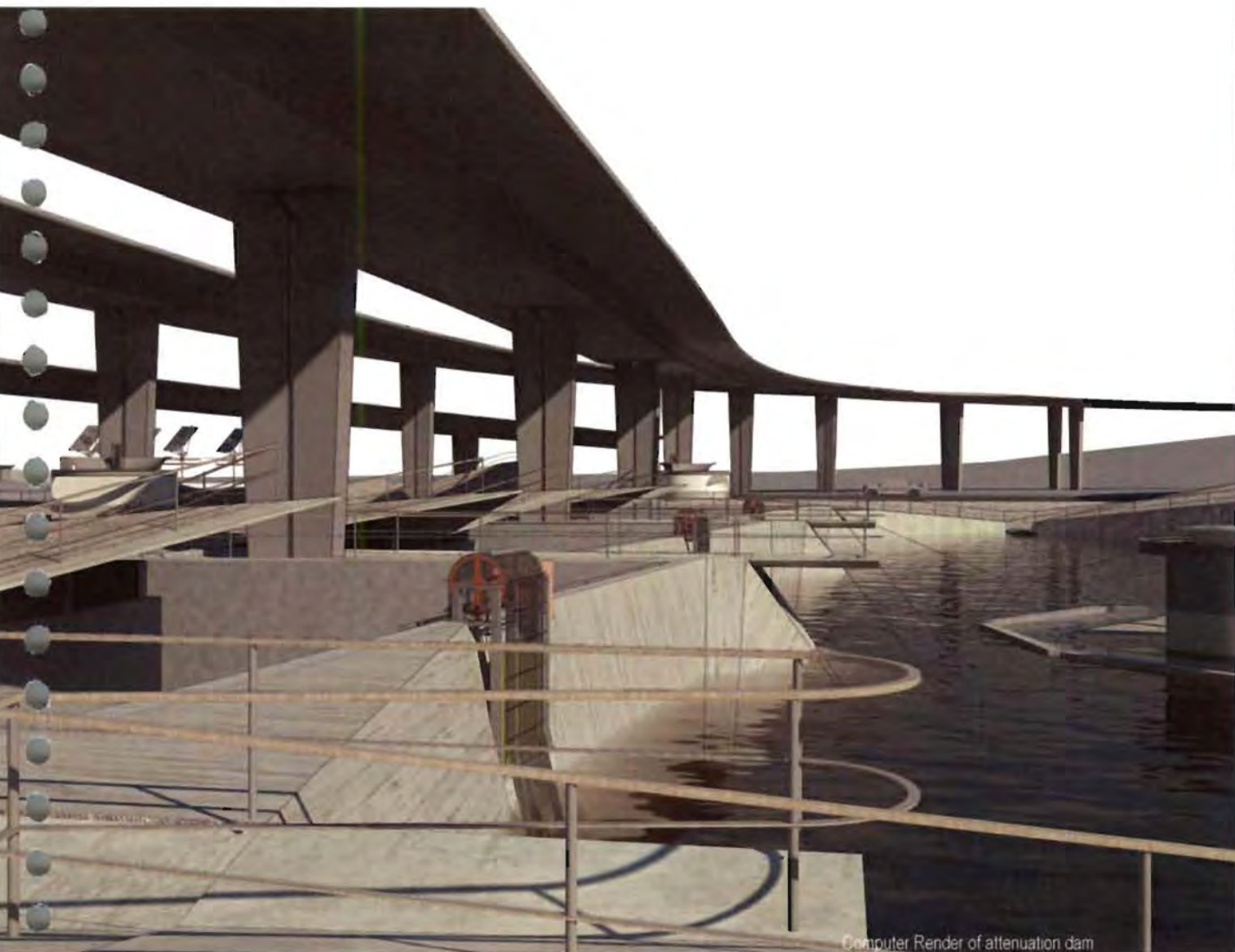
Cutting drawing by author\_Pen and pencil on paper





Casting and Cutting experiments by author\_Screws in wood and starched canvas

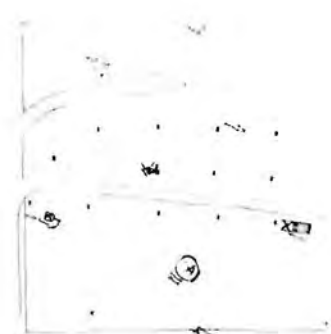
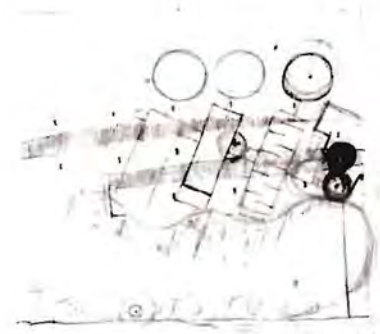
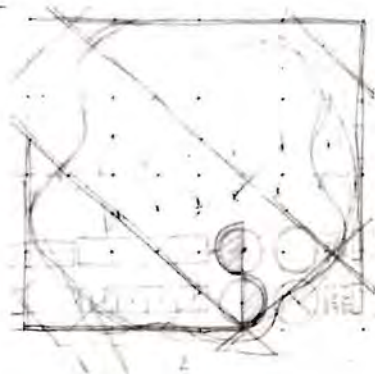
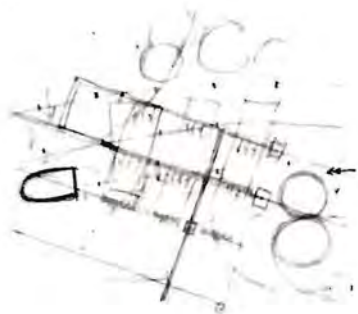
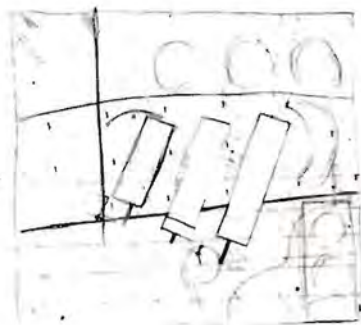




Computer Render of attenuation dam

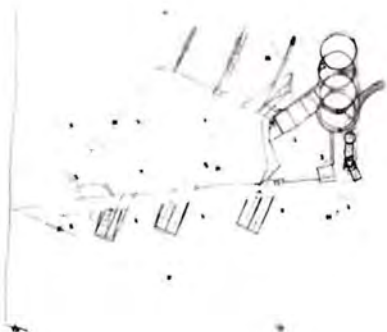
## Chapter 5

### REMAKING THE TERRAIN VAGUE



Sketches from sketch book searching for an arrangement of space on site





Sketches from sketch book searching for an arrangement of space on site

Early model





Early model



Early cardboard models

## INHABITATION AND PROGRAM

The programming of the site was identified as a critical design element in addressing the *terrain vague*, as the very nature of this condition is reliant on the lack of formal programming associated with traditional architectural interventions.

Through the programming of a site, ownership is thereby given over to the people for whom the program is intended. Consequently through giving ownership over to specified users, these occupants have the authority to determine what may or may not be acted out in the space.

Although they may not enforce this invested authority of condemning certain behaviour, there is an implied authority that stifles potential uses.

Thus a robust program was required that essentially functioned without the input and watchful eye associated with ownership. With the concerns of program relating to ownership, I reverted back to the conditions giving rise to the *terrain vague*, which relates to the automated and robust functioning of industrial infrastructure.

*The history of the site as a means for poetically capturing the past, present and future narratives.*

With this concern in mind I turned to the history of the development of the site. Having uncovered the subterranean, there were further pressing questions as to the truncated freeways and their perpetual state of incompleteness.

The construction of the freeways was initially planned to be completed in seven contracts. Contracts one to five were to be completed in the first phase with six and seven to be constructed at a later stage, anticipating a specific rate of growth in traffic. Thus phase two was scheduled to begin when the demand was reached.

However the international oil crisis of 1973 resulted in a halt in the anticipated growth in people using vehicles due to the inflated fuel price. A further international oil crisis in 1979 slowed the expected growth.

As time passed traffic reached the required level for phase two, however far later than initially anticipated. At this time

town planners realised the damage to the urban functioning caused by the freeways and consequently decided not to complete the freeways.<sup>20</sup>

In reflecting on this, and imagining a future, we are once again currently in an economic and ecological crisis where non-renewable resources are being depleted. A previous Vice president of the World Bank, Ismail Serageldin predicted that,

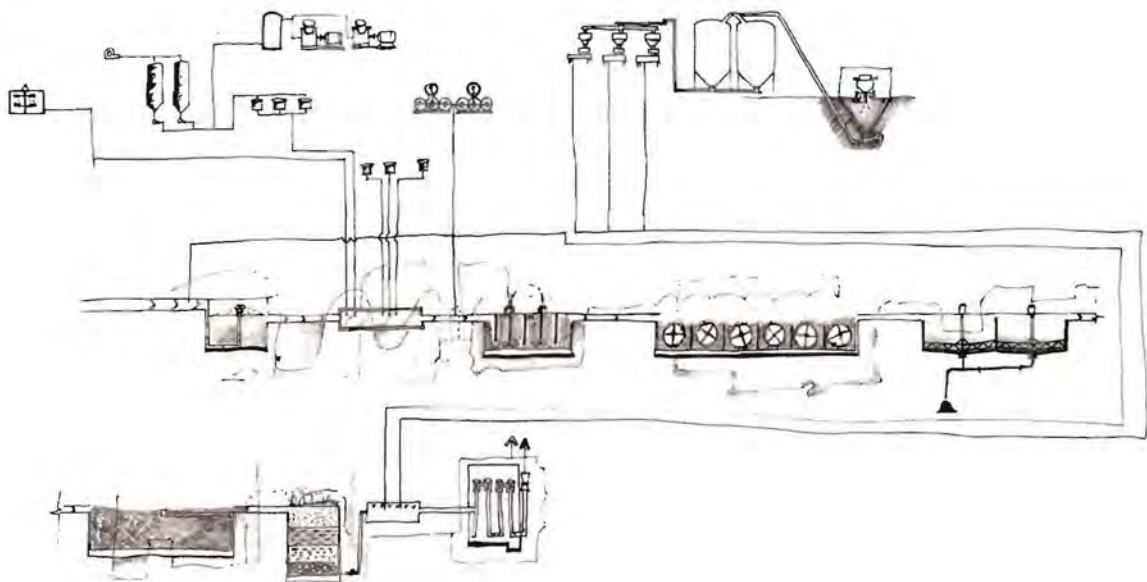
*Many of the wars of the 20<sup>th</sup> century were about oil, but wars of the 21<sup>st</sup> century will be over water unless we change the way we manage water.<sup>21</sup>*

The program of a water purification plant with self appropriating potential is conceived as a program born from the site. The program addresses the narrative of the site (using conditions causing the perpetual incomplete freeways as a poetic connection between past and future) the surrounding subterranean water infrastructure and the nature of the terrain vague.

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<sup>20</sup> Roux, S (Traffic engineer at the Cape Town City Council), 2012

<sup>21</sup> 2009, p163



Sketch of functioning of water purification plant\_Pencil and pen on paper



### The purification plant

The program is envisaged as a living inhabitable piece of industrial infrastructure, lying dormant in summer, surreptitiously pulling off water from the uncontained aquifer making up the water table and purifying it. In these summer months the landscape is dry occasionally flooding for cooling on hot days, cleaning the landscape and follies. However in winter when there is high rainfall the exposed rainwater culverts spit the city bowels rainwater into the plant for purification with the entire landscape flooded except for a few peaks above the water allowing for the magnitude of the spectacle of the winter rains to be appreciated and the site crossed.

The technical resolution of the spatial requirements and design of a water purification plant used an existing plant with similar output requirements, as a template for the design (American river plant Sacramento, California).

### Follies

In order to enhance the *terrain vague's* ability to accommodate any and all activities freely, basic amenities were given to allow for and encourage appropriation of the space.

Four basic amenities were identified as basic requirements. They are as follows;

- ablutions;
- an electrical point;
- shelter (or a framework to create such) and;
- clean water.

However it was feared that the zoning of these amenities would be deterministic as to how and where on the site activities may be born. As a result these amenities are grouped together into small structures (follies) placed all over the site set up on a 50m x 50m grid orientated towards the direction of the underlying rock striations. It is argued here that the grid as an organising mechanism allows for the greatest flexibility for inhabitation of the remaining matrix of space.

Further follies are located around the Cape Town city bowl in strategic positions. This allows for spontaneous activities to occur within the *productive city* thus allowing for a new way of interacting with the urban born in the *terrain vague* and carried into the rest of the city.





## SITING

### Position on site

The specific siting of the project locates itself on the south-eastern corner of the large tract of uninhabited land on the foreshore. This location allows for intervention to relate itself to the unfinished freeways, furthermore acting as a bookend to the long thin swath of land.

This project is envisaged as forerunner to the future development of foreshore, locating itself in a place where the overhead freeways have the greatest effect, offering the rest of the land to the north-west up for further development.

However the development of that land is deliberately left ambiguous in this thesis, resisting the temptation of top down urban planning, because its development is dependant on the indeterminate life taken on by this specific intervention and surrounding future projects. As a result it offers an opportunity to respond to the new urban character in the future.

### Why not "use" the freeways

The unfinished freeways were one of the determining factors in the selection

of the site because they engage the imagination, one is immediately confronted with the hypothetical situation if the freeways were to be completed. Their perpetual state of incompleteness ensures one's imagination is continually simulated. Thus the decision to leave the freeways untouched and incomplete is a deliberate design restraint. Koolhaas writes

*Where there is nothing, anything is possible. Where there is architecture, nothing (else) is possible<sup>22</sup>*

Thus in leaving the freeways as they are the imagination is continually engaged left as giant reminders of the forces that created the site.

### The city block

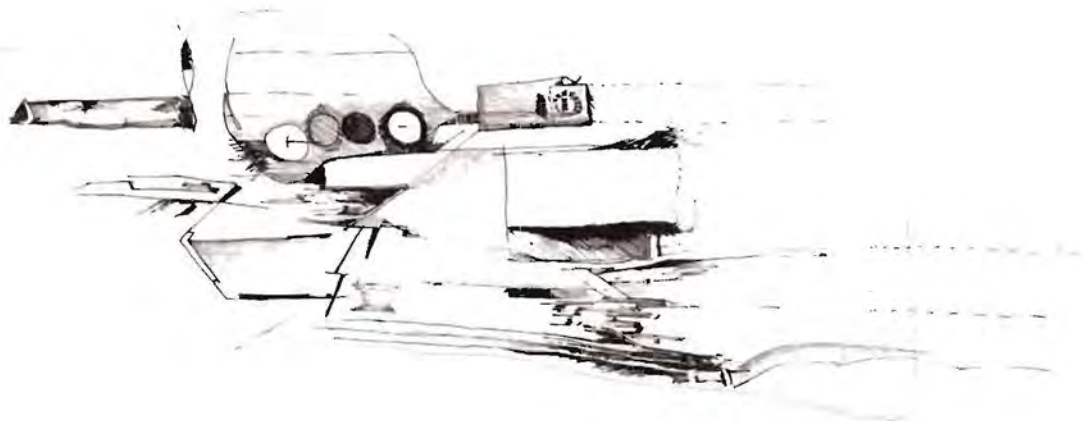
The size and shape of the established boundaries introduces the city grid onto the site. Thus the city and the site previously dislocated are mediated however the programming and design ensures that the site is not merely absorbed into the *productive city*, maintaining its status as the *other*.

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<sup>22</sup> 1995, p199

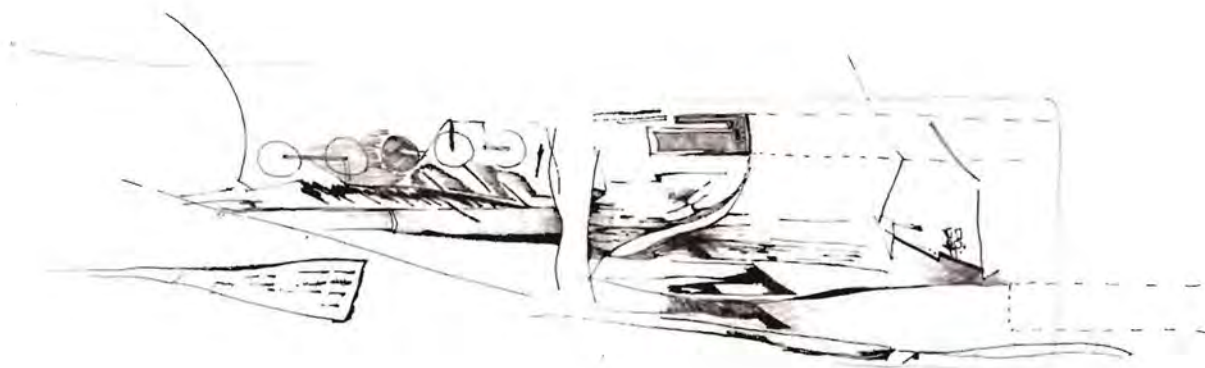


Aerial photograph of Cape Town city bowl 2008\_Site identified in red\_Image from Mowbray mapping Dept

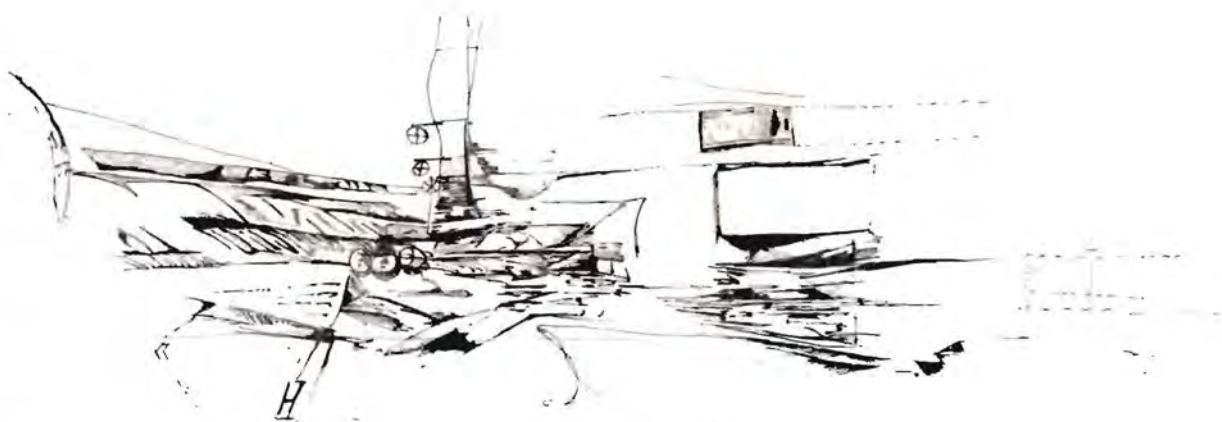


Sketch A\_pencil and pen on paper

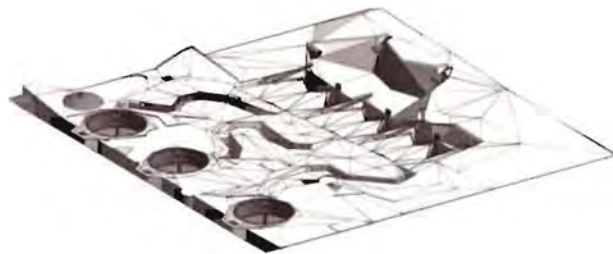
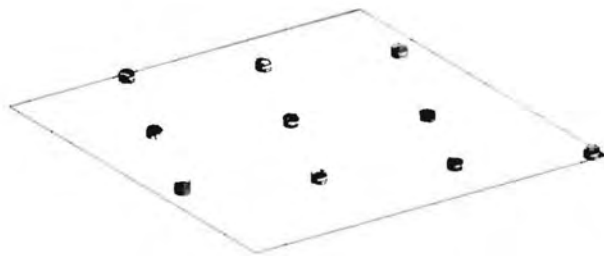




Sketch B\_pencil and pen on paper



Sketch C\_pencil and pen on paper



Aconometric drawings From the top down - Freeways and block cutout, grid of follies, landscape, combined

## DESIGNING THE LAYERS

The designing of a space that attempts to capture *terrain vague* character is an abstract pursuit. However the programming of the space is seen as the primary tool with which to address the condition.

With the program envisaged as a living industrial landscape, sleeping placidly during the summer allowing for human inhabitation and awakening in winter making inhabitation less accessible. The desire was to tie these two seemingly opposing programs together spatially, creating a symbiotic relationship between the two programs where the elements of the industrial program are tied into and become the spatial devices allowing for inhabitation.

### Early Sketches

*Sketch A, Sketch B Sketch C* are conceptual perspective sketches

attempting to envision a spatial character for the site. Much the same as my initial day dreams in the car about what the sites possibilities may be, the drawings were done devoid of constraints such as programmatic spatial requirements.

The drawings are conceived as a space where industrial machine meets a manufactured landscape.

They are essentially a stream of consciousness drawing exercise reintroducing the importance of the untamed imagination that first drew me to the site. The drawings were subsequently used as a device for guiding the architectural project, continually referring back to these conceptual sketches as the project began to take shape. As a result the design process is acknowledged as being a personal endeavor deeply rooted in the imagination.



Cardboard model of landscape



### The Landscape

Arriving at the site one has to cross the very deliberate demarcated boundary onto the rock clad undulating landscape. The sudden change in surface suggests the original sandy surface has been chopped out and removed exposing what is below, hinting at a subterranean character quite different from the original *artificial* surface. Moving through the site the seemingly random undulations begin to form subtly defined spaces and depending on the time of year and or specific day of the week these spaces maybe flooded or dry. The flooding of this landscape ensures that the inhabitation of the site can only be temporal, essentially creating a site, that like the truncated freeways is in a perpetual state of incompleteness. The flooding furthermore is a means of cleaning the follies and landscape such that cleaning staff are not required to look after the intervention, thereby further

removing an implied ownership that may be associated with people watching over and looking after the site.

In addition to the functional aspect of the water, the seasonal and artificial flooding of the terrain alludes to the original state of the site as a body of water before the reclamation of the land. What's more is the landscape's forms are suggestive of maritime origin, thereby reinforcing the narrative of the development of the site in the design.

### Follies

The follies are designed as self contained circular structures, with each folly given its own identity according to the location on the grid. Voids are cut into the primary circular shape, to create this individuality creating a formal dialogue with the incomplete freeways. These forms are further informed by the accompanying space associated with the folly, created by the undulations of the landscape.



Render of follies and tracking solar panels



Folly roof plan

Movement from Clanfiers taken to  
follies where gearing system allows  
for movement of tracking solar  
panels



Folly elevation

### Solar Panels

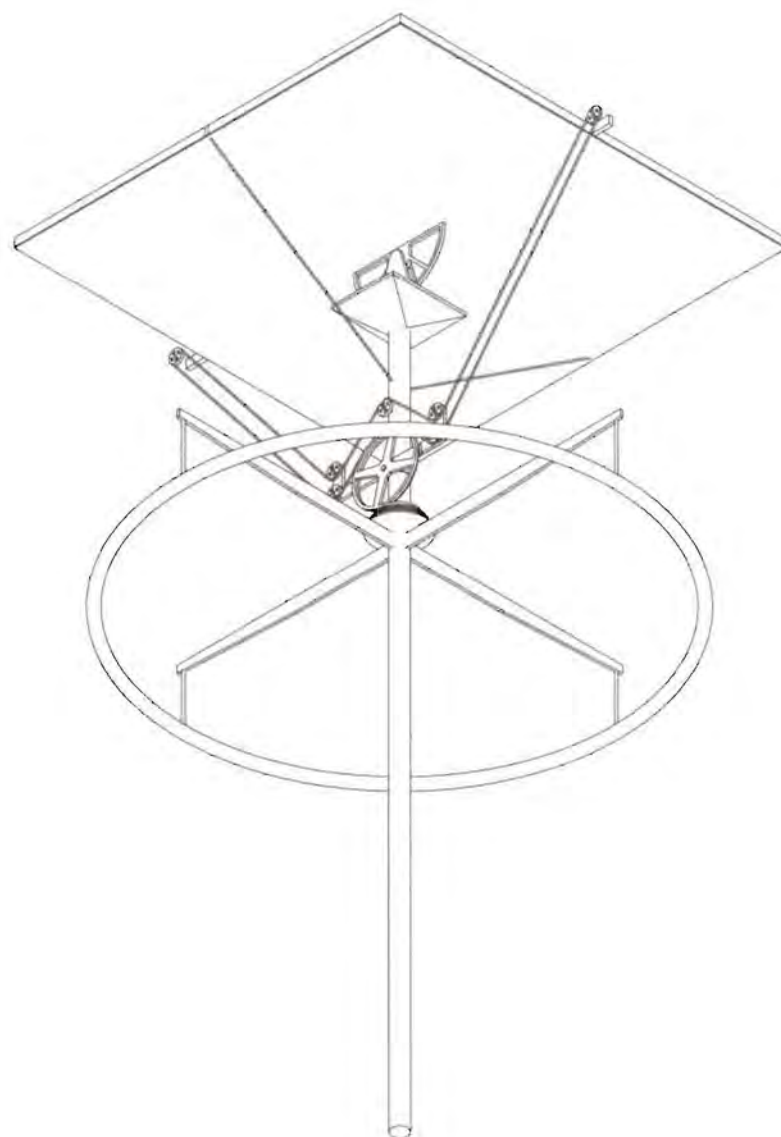
With the follies providing water, electricity and ablutions a "forest" of solar panel structures provide a form of shelter. The solar panels themselves provide very limited shelter but are designed in such a way as to allow for light structures to be hung from these structures.

The spatial consequence of these solar panels is a that the space is given a more human scale in comparison to the magnitude of the freeway structures.

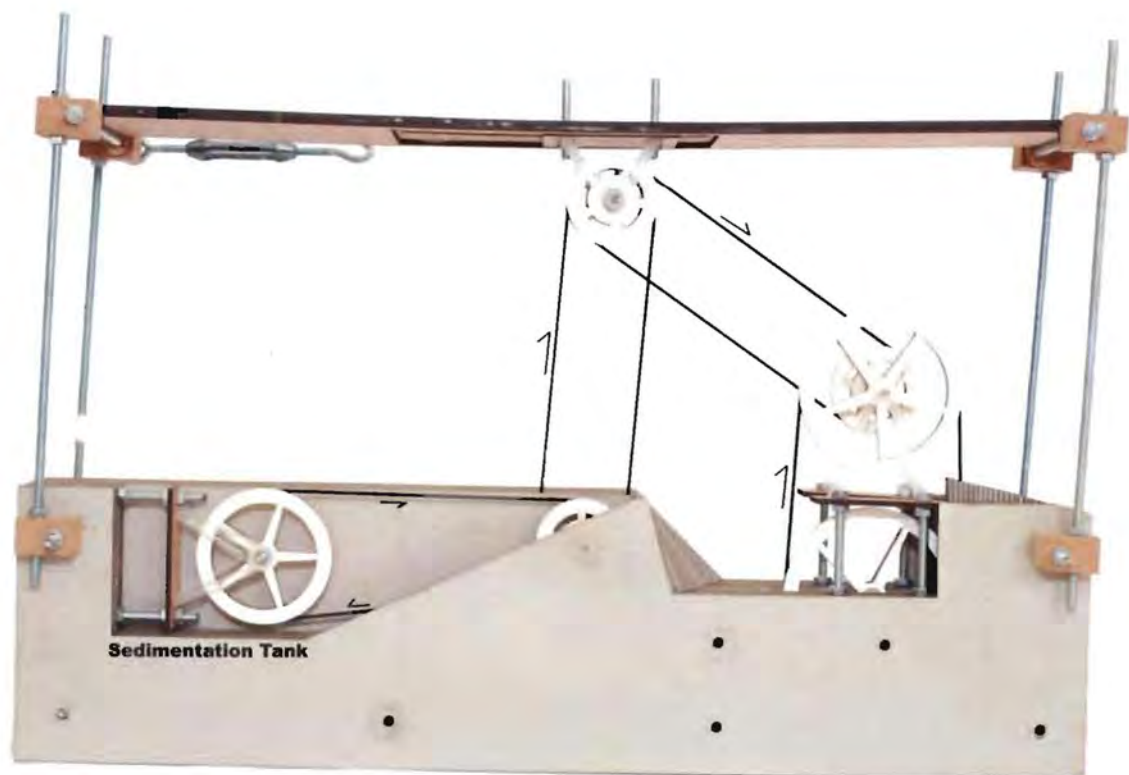
The functioning of the solar panels track the sun in three dimensions providing approximately 40% of the purification plants electricity to be provided for. The means with which these solar panels track the sun is through utilizing the mechanical movement required for the purification process.

The sedimentation tanks and clarifiers require a slow steady movement that removes coagulated solids from the water, this movement is then transferred to a geared system located on each folly that is in turn transferred to the solar panel systems themselves, essentially creating a tracking system that does not use any energy.

The result of this interlinked system is that purification plant ties into the structures allowing for human inhabitation and appropriation. These structures in turn proved electricity for the purification plant essentially creating a mutually dependant system with inhabitation intertwined into the relationship.



Worms-eye-view of solar panel



Conceptual model exploring ways of transferring mechanical movement of sedimentation tank to drive other mechanisms





## CONCLUSION

Reflecting on the terrain vague and the effect that the agency of design has on the condition, it is the conclusion of this paper that the one cannot exist with the other. From a theoretical point of view the very existence of the terrain vague is reliant on the *nothingness* or *otherness* of the space. The act of design is the antithesis of *nothingness*, the nature of design is the creation of something, some form of order.

However I argue that the terrain vague still possess an underlying structure different from that of traditional understanding of order and use. In the search for a design approach sensitive to the idiosyncratic experience of the site an attempt was made to draw program and design from the existing. Thus it was the quest of this thesis to extract those hidden elements behind the existence of the site, and reinterpret them into an architectural

design. In doing so, design is used as a tool to reveal and amplifying existing conditions.

The technology inquiry sought to establish architectural constraints and revealed hidden structures, which are identified as the material aspects of the *terrain vague*. These structures offered possibilities and opportunities of program.

The theoretical stance of *terrain vague* is a condition -identified in this thesis as a relevant approach to specific spaces in the contemporary city- that engages the imagination, representing indeterminacy. Therefore through the creation of an enigmatic environment that facilitates wilful inhabitation the occupant's imaginations are engaged and they have the means with which to play out those imagined realities. As a result it is acknowledged that architecture is played out in time and dependant on the creative use by its occupants.

The use of architectural precedents outside of the realm of architecture suggested a means of engaging the sites condition and set up experiments and drawings initially done in abstract, these ideas were then recontextualized into an architectural design.

Consequently the resulting intervention is a product of the design process involving personal points of view that aligned the research with specific theories and creative explorations, producing a project completely removed from preconceived ideas. This thesis represents a personal learning that each architectural endeavour needs to be addressed according to the situation in which the project is located. In this sense the architect's role is not to enforce his/her individual, preconceived design desires onto a site but rather to interpret the situation and respond accordingly.

## GLOSSARY

**Material** – The product of various events taking place and forces that have been at play. It can be equated to a river, whereby a ravine or path of water is a distinct product that has arisen as a result of water falling and the eroding the ground. The product of the river is material in the sense that the product is inextricably linked to the factors that have acted upon the ground surface to produce the moving body of water.

**Productive City** – An urban environment whose space is fully utilized with programmatic efficiency.

**Ownership** – People using the space with the invested social authority to determine what may or may not happen in that space

## APPENDIX



### Thesis help

Adam Clemens <clemens.adam@gmail.com>  
To: Gerry <gerryvnoel@gmail.com>

1 September 2021 02:29

Hi Gerry

I hope you are well, where in the world are you these days and what are you up to? I am contacting you out of the blue regarding our last encounter 3 years ago! I remember you were in the process of completing your engineering thesis, developing a tracking solar panel system. I am currently doing my final year at UCT and my thesis is looking to use a system of tracking solar panels as part of the design. I am doing a water purification plant and looking to use the mechanical movement of the sedimentation tanks and transfer that into a system that is used for the tracking of the solar panels. Is this a possibility and can you give me a few pointers regarding the design of a tracking system of solar panels.

Regards

Adam

Gerard Noel <gerryvnoel@gmail.com>  
To: Adam Clemens <clemens.adam@gmail.com>

16 September 2012 10:08

Howzit Adam!

You are still studying!? I am in the UK at the moment with the rest of South Africa. I remember seeing you last. Its my thesis it turned into a mad house, because I built my system very late and then tried to test it out on the west coast and the wind pretty much ripped my poor solar panels head off! So I had to rethink everything, but in short the edges of the solar panel need to be anchored down and the movement system should preferably not be the structural support. Not sure if that makes sense? Using the mechanical movement from the sedimentation tank (no idea what a sedimentation tank is!?) sounds really interesting. The amount of energy required to move the solar panels is very little but then you want to have a nett gain of power as high as possible. Therefore if you can reduce the expenditure of energy to a minimum your nett gain is maximised. I don't know what the mechanical movement of a sedimentation tank is like but the great thing about the tracking solar panels is that it only requires approx. half a revolution. So will need to transfer the sedimentation movement to a gearing system that converts the sedimentation revolutions to half a revolution. This transfer would require almost no extra exertion on the sedimentation tank due to the small revolution you require. Its much the same as when you are on a bike and you go into a lighter gear your legs have to do more revolutions but they are much easier, so now imagine you only have to turn your bicycle wheel half way, you would feel like you were peddling on air! I hope this all makes sense, describing mechanical systems in text is impossible! But let me know if you need further help.

Give me a call if you are in London sometime.

G



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